

Claims 21 and 22 are new and have been added to better encompass the full scope and breadth of the invention notwithstanding the patentability of the original claims. Support for new claims 21 and 22 may be found in the specification as filed at the last paragraph of page 10 and the second paragraph of page 11.

Claim Rejections

The Rejection Of Claims 1 To 3, 5 And 6 Under 35 U.S.C. §103(a) as Being Unpatentable Over Chan et al. (U.S. Patent No. 6,312,874) In View Of Huang et al. (U.S. Patent No. 6,191,484)

The rejection of claims 1 to 3, 5 and 6 under 35 U.S.C. §103(a) as being unpatentable over Chan et al. (U.S. Patent No. 6,312,874) (the '874 Chan Patent) in view of Huang et al. (U.S. Patent No. 6,191,484) (the '484 Huang Patent) is acknowledged.

The Rejection Of Claims 4 And 11 Under 35 U.S.C. §103(a) as Being Unpatentable Over Chan et al. (U.S. Patent No. 6,312,874) In View Of Huang et al. (U.S. Patent No. 6,191,484) And Further In View Of Zhao (U.S. Patent No. 6,100,184)

The rejection of claims 4 and 11 under 35 U.S.C. §103(a) as being unpatentable over Chan et al. (U.S. Patent No. 6,312,874) (the '874 Chan Patent) in view of Huang et al. (U.S. Patent No. 6,191,484) (the '484 Huang Patent) and further in view of Zhao (U.S. Patent No. 6,100,184) (the '184 Zhao Patent) is acknowledged.

The Rejection Of Claim 8 Under 35 U.S.C. §103(a) as Being Unpatentable Over Chan et al. (U.S. Patent No. 6,312,874) In View Of Huang et al. (U.S. Patent No. 6,191,484) And Further In View Of Zhao (U.S. Patent No. 6,100,184)

The rejection of claim 8 under 35 U.S.C. §103(a) as being unpatentable over Chan et al. (U.S. Patent No. 6,312,874) (the '874 Chan Patent) in view of Huang et al. (U.S. Patent No. 6,191,484) (the '484 Huang Patent) and further in view of Zhao (U.S. Patent No. 6,100,184) (the '184 Zhao Patent) is acknowledged.

The Rejection Of Claim 9 Under 35 U.S.C. §103(a) as Being Unpatentable Over Chan et al. (U.S. Patent No. 6,312,874) In View Of Huang et al. (U.S. Patent No. 6,191,484) And Further In View Of Ohashi (U.S. Patent No. 6,184,143)

The rejection of claim 9 under 35 U.S.C. §103(a) as being unpatentable over Chan et al. (U.S. Patent No. 6,312,874) (the '874 Chan Patent) in view of Huang et al. (U.S. Patent No. 6,191,484) (the '484 Huang Patent) and further in view of Ohashi (U.S. Patent No. 6,184,143) (the '143 Ohashi Patent) is acknowledged.

The Rejection Of Claims 12 To 20 Under 35 U.S.C. §103(a) as Being Unpatentable Over Chan et al. (U.S. Patent No. 6,312,874) In View Of Huang et al. (U.S. Patent No. 6,191,484) And Further In View Of Cronin (U.S. Patent No. 5,759,911)

The rejection of claims 12 to 20 under 35 U.S.C. §103(a) as being unpatentable over Chan et al. (U.S. Patent No. 6,312,874) (the '874 Chan Patent) in view

of Huang et al. (U.S. Patent No. 6,191,484) (the '484 Huang Patent) and further in view of Cronin (U.S. Patent No. 5,759,911) (the '911 Cronin Patent) is acknowledged.

Independent claims 1 and 12 distinguish over the cited references under 35 U.S.C. §103(a) for the following reasons.

In the '874 Chan Patent, layers 52 and 54 are not *on* conductor stud 42 as claimed in the instant invention. Further, the bottom stop layer 44 of Chan is comprised of only SiN as opposed to a composite etch stop layer 20, 22 as claimed in the instant invention and therefore Chan teaches away.

In the '484 Huang Patent, layers 24, 26 (28) are used to pattern underlying aluminum layer 22 while the composite etch stop layer 20, 22 of the instant invention is etched (to expose the underlying conductor stud) and is not used to etch the conductor stud. Further, the underlayer 24 of Huang is a glue layer, not an etch stop layer and therefore Huang teaches away from the instantly claimed invention. Also, as shown in Figs. 2A and 2B and disclosed at Col. 5, lines 21 to 31 of Huang, a photoresist layer is not formed and a CMP step is employed.

Further, independent claims 1 and 12 distinguish over the cited references under §103(a) because, inter alia, the prior art lack a suggestion that the references should be modified in a manner required to meet the claims; the invention is contrary to the teaching of the prior art as noted above;—that is, the invention goes against the grain of what the prior art teaches; the Examiner has made a strained

interpretation of the reference that could be made only by hindsight; and the Examiner has not presented a convincing line of reasoning as to why the claimed subject matter as a whole, including its differences over the prior art, would have been obvious.

Claims 2 to 11 and 21 depend from amended independent claim 1; and claims 13 to 20 and 22 depend from independent claim 12; and are believed to distinguish over the combination for the reasons previously cited.

Therefore claims 1 to 22 are submitted to be allowable over the cited references and reconsideration and allowance are respectfully solicited.

CONCLUSION

In conclusion, reconsideration and withdrawal of the rejections are respectively requested. Allowance of all claims is requested. Issuance of the application is requested.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

It is requested that the Examiner issue only written Office Actions and requirements in this application.

Respectively submitted,

A handwritten signature in black ink, appearing to be 'SBA', is written above a horizontal line.

Stephen B. Ackerman

Reg. No. 37,761



Version with markings to show changes made.

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Please amend the claims as follows:

1. (Amended) A method for forming a patterned microelectronics layer comprising:
providing a substrate having [a] at least one conductor stud within a contact region
formed therein;

forming on [over] the at least one conductor stud [substrate] a first lower sub-
layer and a second upper sub-layer to provide a composite etch stop layer;

forming over the composite etch stop layer an inter-level metal dielectric (IMD)
layer;

forming over the IMD layer a photoresist mask layer pattern of an
interconnection line trench pattern centered over the contact layer and transferring the
pattern by etching while employing a first etching method through the IMD layer and
the second upper sub-layer of the composite etch stop layer to the first lower sub-layer
of the composite etch stop layer;

etching while employing a second etch method the first lower sub-layer from the trench
pattern for the interconnection lines.

Please add the following claims:

-- 21. The method of claim 1, wherein:

(1) the first etching method employs a mixture of:

CF₄;

CHF₃; and

oxygen

as etching gasses; and

(2) the second etch method employs argon as a sputtering gas.

22. The method of claim 12, wherein:

(1) the first etching method employs a mixture of:

CF₄;

CHF₃; and

oxygen

as etching gasses; and

(2) wherein etching of the first lower organic polymer sub-layer employs argon as a sputtering gas. --